



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------------|-------------|----------------------|---------------------|------------------|
| 10/828,260 | 04/21/2004 | Kei Sakagami | 040189 | 4848 |
| 23850 | 7590 | 11/15/2007 | EXAMINER | |
| KRATZ, QUINTOS & HANSON, LLP | | | BLAIR, KILE O | |
| 1420 K Street, N.W. | | | | |
| Suite 400 | | | ART UNIT | PAPER NUMBER |
| WASHINGTON, DC 20005 | | | 4114 | |
| | | | MAIL DATE | DELIVERY MODE |
| | | | 11/15/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/828,260 | SAKAGAMI, KEI | |
| | Examiner | Art Unit | |
| | Kile O. Blair | 4114 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 29 December 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-13 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-13 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 29 December 2004 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application

6) Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because the first sentence contains improper grammar. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 12 is rejected under 35 U.S.C. 101 because the claimed invention is directed to a computer program which is non-statutory subject matter.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The examiner has interpreted the claim to read as follows:

The audio data processing device according to claim 3, wherein the delay processor delays the audio data based on the difference between the first locating distance and the sum of the second locating distance and the distance sound travels in

the time it takes for the modulation and demodulation of the audio data transmitted to the second speaker in the wireless transmission system.

The applicant could amend the claim to reflect the examiner's interpretation in order to overcome the rejection under 35 U.S.C. 112, second paragraph.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-8, 10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomohiko (JP Pub. No. 11-262081) in view of Lindemann et al. (US Pub. No. 2004/0223622).

Regarding claim 1, Tomohiko in view of Lindemann et al. teaches an audio data processing device for reproducing audio data from a plurality of speakers located around a reference point (acoustic waves transmitted to hearing point from two or three

speakers, Tomohiko [0003]), the device comprising: an audio data acquiring section for acquiring the audio data (audio equipment 100, Tomohiko [0016], Fig. 1, 100) and a delay processor (delay machines 10,12, and 14 [0016]) for selectively delaying audio data transmitted to a first speaker connected by way of wiring in a wired transmission system out of the audio data of channels respectively corresponding to the speakers on the basis of a time (are in agreement, [0005]) until the audio data transmitted to a second speaker connected by way of a radio medium in a wireless transmission system is reproduced from the second speaker (the acoustic waves are in agreement {i.e. arrive at the same time } at the hearing point, [0003]). Although Tomohiko does not teach wireless speakers as required, Tomohiko does teach a method of audio processing and delays that will compensate for differences in the length of wires connecting the loudspeakers which causes a delay in transmission time. This method could be applied by compensating for the transmission and modulation delays in the digital wireless speakers of Lindemann et al (Lindemann et al., [0011]). It would have been obvious for one of ordinary skill in the art to use the digital wireless speakers of Lindemann et al. in the system of Tomohiko with the motivation of having a means of taking into account transmission and modulation delays caused by using wireless speakers just as one would take into account transmission delays caused by different wire lengths as taught by Tomohiko.

Regarding claim 2, Tomohiko in view of Lindemann et al. teaches the audio data processing device according to claim 1, further comprising a transmitter that transmits the audio data as a digital signal to the second speaker in the wireless transmission

system. Although, Tomohiko does not explicitly teach the feature of sending a digital signal to a wireless speaker, Lindemann et al. does teach the feature (Lindemann et al., [0063]) and it would have been obvious to one of ordinary skill in the art to implement the digital wireless speaker of Lindemann et al. into the system of Tomohiko.

Regarding claim 3, Tomohiko in view of Lindemann et al. teaches the audio data processing device according to claim 1, wherein the delay processor delays the audio data according to a first locating distance from the reference point to the first speaker, a sound travel distance corresponding to a time necessary for modulating and demodulating the audio data transmitted to the second speaker in the wireless transmission system and a second locating distance from the reference point to the second speaker (A setup of a time delay with a high precision which considered the class of not only the difference of the distance of each loudspeaker and a sound-collecting means but loudspeaker and the difference of a wire length especially is attained, Tomohiko, [0009]). Although Tomohiko does not explicitly teach the feature of delaying based on modulation delays it has been previously noted that it would have been obvious for one of ordinary skill in the art to combine the system of Tomohiko with the speaker of Lindemann et al. with the same motivation as set forth above in the rejection of Claim 1.

Regarding claim 4, Tomohiko in view of Lindemann et al. teaches the audio data processing device according to claim 3, wherein the delay processor delays the audio data based on the difference between the first locating distance and the total distance of the second locating distance and the sound travel distance (until the corresponding

acoustic wave of each frequency component arrives at a listening location should take into consideration not only the difference by the difference of the distance from each loudspeaker to a listening location but the difference of time amount after an audio signal is inputted into each loudspeaker until an acoustic wave is emitted, Tomohiko, [0007]).

Regarding claims 5 and 6, Tomohiko in view of Lindemann et al. teaches the audio data processing device according to claim 1, further comprising: a storage that stores the audio data so that the delay processor delays the audio data, wherein the storage has a data area having the same size as a standard data area that is used when a same transmission system is applied to the speakers, and a delay time of the first speaker is assigned to the data area (memory which stores audio data in time interval while delaying, Tomohiko, [0040]).

Regarding claim 7, Tomohiko in view of Lindemann et al. teaches the audio data processing device according to claim 1, wherein the first speaker represents a center speaker located at the front relative to an audience, a right front speaker located at the front right side and a left front speaker located at the front left side, and the second speaker denotes a right rear speaker located at the rear right side relative to the audience and a left rear speaker located at the rear left side (the selection of the respective speakers listed, Lindemann et al., [0064]). The motivation for making this modification to Tomohiko is the same as that set forth in the rejection of Claim 1, above.

Regarding claim 8, Tomohiko in view of Lindemann et al. teaches the audio data processing device according to claim 1, further comprising: a connection detector for

detecting that the speaker is connected in the wired transmission system so that the audio data can be acquired, wherein the delay processor delays the audio data transmitted based on the connection status of the respective speakers detected by the connection detector (a time delay stimulus signal is inputted into each loudspeaker, a corresponding acoustic wave is emitted in sound space, the sound-collecting means of a listening location detects this, a time delay is surveyed, the time delay of each delay means is set up based on this observation result, and a setup of an exact time delay is attained, Tomohiko, [0060]).

Regarding claims 10, 12 and 13, they are substantially similar to claim 1 and are rejected for the same reasons.

8. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomohiko (JP Pub. No. 11-262081) in view of Lindemann et al. (US Pub. No. 2004/0223622) and further in view of Hooley et al. (US Pub No. 2004/0151325).

Regarding claim 9, Tomohiko in view of Lindemann et al. in further view of Hooley et al. teaches the audio data processing device according to claim 1, further comprising: an image data acquiring section for acquiring image data (source such as a DVD player, Hooley et al., [0178]); a display for reproducing the acquired image data; and an image data delay processor that delays, at transmission of the image data (screen means that receives signals from video delay means, Hooley et al. [0178]), the image data by a time corresponding to a maximum delay time of the audio data delayed by the delay processor (the video is delayed with reference to the greatest distance

traveled by a sound beam and can further be delayed to match the audio based on processing delays in the audio, Hooley et al., [0178]). Although the system of Tomohiko and the wireless speakers of Lindemann et al. do not teach the feature of delaying a video in order to synchronize with the sound output at a reference point as required, Hooley et al. teaches a video delays means that delays the video output based on the greatest distance traveled by the sound and also a further delays component is taught where the video may be delayed further in order to compensate for processing delays which could also be used by one of ordinary skill in the art to compensate for wireless transmission delays. It would have been obvious for one of ordinary skill in the art to combine the video delays means of Hooley et al. with the system of Tomohiko and the wireless speakers of Lindemann et al. with the motivation of having a means of adjusting a system that can already delay an audio signal to delay video signal requires routine skill in the art.

Claim 11 is rejected for the same reasons as claim 9.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Harada (JP Pat. No. 05323010) teaches utilization of radio signals to determine the respective distances of speakers in a system and then using delay machines to correct arrival time difference of the sound output of the speakers. Plunkett (US Pat. No. 5,386,478) teaches the optimization of various parameters in a sound system such as

time delay. Anderson et al. (US Pat. No. 5,406,634) teaches a speaker unit using wireless transmission and control data including sound delay. Ichise et al. (US Pat. No. 5,586,193) teaches a transmission delay when transmitting audio signals giving the delay a value of at least four frames or data sample collections. Ambourn et al. (US Pat. No. 5,708,718) teaches wireless speakers utilizing FM transmission. Ambourn (US Pat. No. 5,737,427) teaches a surround system using wireless or hard-wired speakers. Dunlavy (US Pat. No. 5,778,087) teaches the adjustment of the location of speakers to ensure that they are acoustically equidistant from the listening position. Schotz (US Pat. No. 5,832,024) teaches synchronization of digital wireless speakers. Jouppi (US Pub. No. 2002/0141595) teaches adjustments based on transmission delays between a user station and a remote unit. Cromer et al. (US Pub. No. 2002/0159611) teaches a remote control that will gather distance information and use it to determine the user position and then adjust the speaker delays appropriately so that the sound output reaches the user at the right time. Pivinski (US Pub. No. 2003/0179889) teaches a system to allow a user to implement hard-wired speakers in an existing wireless speaker system. Halgas et al. (US Pub. No. 2004/0071294) teaches a digital signal control device that will use the distance from the speakers to the control device to determine delay times for the signals so that they will all arrive simultaneously as acoustic output sound at the control device. Neuman (US Pat. No. 7,103,187) teaches a system that will ensure that sound will arrive synchronously at a listener's desired location by using two canceling reference signals to create a "null" line. Audioholics.com teaches a surround system that delays certain speakers based on their distances from a listener. Tetsuya et al. (JP Pub. No.

2002-315099) teaches that the maximum delay time out of the delay times applied to the audio signals is used for an image delay time.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kile O. Blair whose telephone number is (571) 270-3544. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joe H. Cheng can be reached on (571) 272-4433. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KB
11/5/07

/Joe H Cheng/
Supervisory Patent Examiner, Art Unit 4114